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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,254	02/01/2002	Yoshiki Nakagawa	011300	7001

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EXAMINER

WILSON, DONALD R

ART UNIT PAPER NUMBER

1713

DATE MAILED: 10/17/2003

12

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/926,254

Applicant(s)

NAKAGAWA ET AL.

Examiner

Donald R Wilson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 6,11,21 and 24-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,7-10,12-20,22 and 23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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**DETAILED ACTION**

***Response to Restriction/Election Requirement***

1. Applicant's election without traverse of the inventions of Group I, Claims 1-5 and 7-23<sup>1</sup> in Paper No. 11 is acknowledged.

2. Applicant's affirmation without traverse of the previous election in Paper No. 9, of the species of:

- a. a butyl acrylate/ethyl acrylate/methoxyethyl acrylate copolymer as the vinyl polymer,
- b. alkenyl groups as the initial terminal groups, and
- c. potassium acetate as the oxy anion compound,

is also acknowledged.

3. Claims 6 and 24-26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention. Claims 11 and 21 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected specie of the invention. Claims 1-5, 7-10, 12-20 and 22-23 are under consideration.

***Claim Rejections - 35 USC § 112, Second Paragraph***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. ***Claims 8-10, 13-15 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.***

6. The language of Claim 8 is indefinite because R<sup>1</sup> is shown to be a divalent group, and what the group is connected to other than "-O-" is not defined. It is noted that Claim 10 specifies a univalent or bivalent group. Although the elected specie of potassium acetate is not included in the structure of formula (1), the claim has been included in those being examined on the assumption that the claim will be amended to include the elected specie.

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<sup>1</sup> Applicant is correct in pointing out that in the restriction requirement the inventions of Group I should have read Claims 1-5 and 7-23. Any inconvenience to applicant is regretted.

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7. Claim 9 is indefinite because  $R^2$  is shown to be a divalent group, and what the group is connected to other than "-C(=O)" is not defined.
8. Claim 10 is indefinite because Claim 8 has no "formula 2", and "formula 1" does not include a univalent organic group.
9. The language of Claim 13 is indefinite because the indicated oxyanions do not have a bivalent "-R<sup>1</sup>-" group.
10. Claim 14 is indefinite because it is unclear as to what is either a univalent or divalent carboxylate salt.
11. Claim 15 is indefinite because it is unclear what is meant by "any of benzoic acids or an acetic acid", as benzoic and acetic acid or specific compounds. It is also unclear as what compounds are included in those "derived" from such acids. Given enough chemistry almost any organic compound can be derived from another. If applicant simply means that the oxy anion compound is a salt of benzoic or acetic acid, then that is the language which should be used.
12. Claim 19 is indefinite because it is not known what is meant by "a main" chain polymer as the polymer would only have one main chain.

***Claim Rejections - 35 USC § 102(b)/§ 103(a)***

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

16. **Claims 1-4, 8-10, 12-14, 16-17, 19-20 and 22-23 are rejected under 35 U.S.C. 102(e) as anticipated by Nakagawa'688.**

17. Nakagawa'688 discloses the preparation of vinyl polymers having alkenyl end-groups, which have narrow molecular weight distributions of less than 1.8, number average molecular weights of 500 to 100,000, and are prepared by reaction of terminal halogen groups with an oxy anion (e.g., col. 2, lines 6-59, and Example 6). Suitable oxy anions for instance specifically include various alkenyl carboxylates (e.g., col. 15, lines 47-63), which are exemplified by potassium salts (e.g., Examples 6 and 15). The polymers include those made by atom transfer polymerization (col. 7, lines 15-60), and examples wherein the transferred atom is bromine are exemplified in the working examples. Vinyl polymers taught include various acrylate monomers and a plurality thereof, among which the elected species of a butyl acrylate, ethyl acrylate and 2-methoxyethyl acrylate are specifically taught (col. 2, line 60 to col. 3, line 50). As the various acrylate monomers all have an ester groups, the terminal positions would all include a functional group in addition to a halogen group. Monomers containing glycidyl groups, hydroxyl groups, silyl groups and amino groups are taught in the list of suitable monomers making polymers containing such end functionality readily envisaged by one of ordinary skill in the art.

18. **Claims 5 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagawa'688 as applied to claims 1-4, 8-10, 12-14, 16-17, 19-20 and 22-23 above, and further in view of Nakagawa'688.**

19. Nakagawa'688 as discussed above is deficient in not specifically teaching that the vinyl polymer being treated contains terminal end groups, or that the polymer being treated results from addition of an

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olefin compound having low polymerizability to a polymer terminus upon addition of the olefin compound during or at the end of polymerization. However, Nakagawa'688 specifically teaches that the number of terminal alkenyl groups is preferably 1.2 to 4 per molecule (col. 4, lines 33-38). Nakagawa'688 also teaches the formation of two terminal alkenyl groups by the addition of 1,7-octadiene, an olefin compound of low polymerizability, to the end groups, resulting in two terminal alkenyl groups and two terminal bromo groups (e.g., Example 5). In order to achieve the preferred 4 alkenyl terminal groups per molecule, it would have been obvious to one of ordinary skill in the art to further react the two terminal bromine groups with an alkenyl carboxylate salt.

20. In regards to the elected specie of an butyl acrylate/ethyl acrylate/methoxyethyl acrylate copolymer, lacking a showing of criticality for the specific copolymer, it would have been obvious to one of ordinary skill in the art to make such with an expectation of equivalent results to the other copolymers taught, as it is within the generic teaching of copolymers found at col. 2, line 60 to col. 3, line 50

21. **Claims 1-4, 7-10, 12-15, 17, 19-20 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Devonport'519 or Devonport'380.** The former is a C-I-P of the latter and the teachings referred to below are based upon Devonport '380, but may also be found in Devonport'519.

22. Devonport'519 and Devonport '380 disclose polymers containing labile halogen end-groups (col. 2, line 55 to col. 3, line 22). The polymers specifically include vinyl polymers such as acrylates (col. 8, lines 48-61), and are made under conditions of atom group transfer polymerization (col. 8, line 62 to col. 9, line 47). The polymers have molecular weights of about 1,000 to 1,000,000, and based upon the method of polymerization would be expected to have narrow molecular weight distributions.

Devonport'519 and Devonport '380 teach that the terminal halide group can be replaced by other well known methods such as any of those taught by March, which is incorporated by reference. Such methods taught include reaction of secondary halides with alkali salts of carboxylic acids (e.g., March, p. 398-399). Acetic acid would readily be envisioned by one of ordinary skill in the art as it is one of the most common such acids. lacking a criticality for removing the halide group with a sodium or potassium acetate or benzoate, it would have been obvious to one of ordinary skill in the art to use such as taught

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and/or obvious over March with an expectation of equivalent results to other methods taught of removing the halide end-group.

23. **Claims 1-2, 7-10, 12-13, 17 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Kennedy.**

24. Kennedy discloses the removal of the terminal chlorine groups from t-chlorinated polyisobutylene having a molecular weight of 500 to about 50,000 with potassium butoxide (col. 7, lines 33-53).

25. **Claims 1-4, 8-10, 12-14, 16-17, 19-20 and 22-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Kitano.** Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

26. Kitano discloses and claims processes of reacting a vinyl polymer containing a halogen in a terminal group with an oxy anion (e.g., Claim 1). Sodium and potassium salts of the oxy anion are disclosed (e.g., Claim 2), and the polymer is made by the atom group transfer process (e.g., Claims 3-5). The vinyl polymer includes acrylate copolymers such as the instantly elected specie. The polymers have narrow molecular weight distributions and molecular weights such as are instantly claimed (col. 6, lines 37-54).

#### ***Obviousness Double Patenting Rejection***

27. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

28. A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

29. Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

30. **Claims 1-4, 7-10, 12-14, 16-20 and 22-23 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-8 of U.S. Patent No.**

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6,274,688 (Nakagawa'688) or Claims 1-12 of U.S. Patent 6,423,787 (Kitano). Although the conflicting claims are not identical, they are not patentably distinct from each other because of the reasons discussed above.

#### ***Evidence of Common Ownership***

31. Claims 1-4, 7-10, 12-14, 16-20 and 22-23 are directed to an invention not patentably distinct from Claims 1-8, or Claims 1-12, of commonly assigned U.S. Patent No. 6,274,688 (Nakagawa'688), or U.S. Patent 6,423,787 (Kitano), respectively, for reasons discussed above.

32. The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned U.S. Patent No. 6,274,688 (Nakagawa'688), and U.S. Patent 6,423,787 (Kitano), discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee is required under 37 CFR 1.78(c) and 35 U.S.C. 132 to either show that the conflicting inventions were commonly owned at the time the invention in this application was made or to name the prior inventor of the conflicting subject matter. Failure to comply with this requirement will result in a holding of abandonment of the application.

33. A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications filed on or after November 29, 1999. See MPEP § 706.02(l)(2) II for evidence required to show common ownership.

#### ***References Cited Search Report***

34. The references cited in the Search Report for the PCT application have been considered, but will not be listed on any patent resulting from this application because they were not provided on a separate list in compliance with 37 CFR 1.98(a)(1). In order to have the references printed on such resulting patent, a separate listing, preferably on a PTO-1449 form, must be filed within the set period for reply to this Office action.



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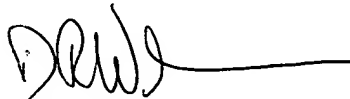
***Future Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to D.R. Wilson whose telephone number is 703-308-2398 (571-272-1113).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 703-308-2450 (571-272-1114). The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications. The unofficial direct fax phone number to the Examiner's desk is 703-872-9029 (571-273-1113).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-2351.

The Examiner is expected to move to the new Office about Christmas time. New telephone numbers known to the Examiner are indicated in parentheses.

A handwritten signature in black ink, appearing to read 'DRW', followed by a horizontal line extending to the right.

D. R. Wilson  
Primary Examiner  
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